U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY TECHNOLOGY CENTER (FETC)

Preston County, West Virginia, Watershed Improvement Project

DOE=s Federal Energy Technology Center (DOE-FETC) staff responded to a request from the Preston County Commission to organize a watershed improvement project. Preston County comprises some 700 square miles in North Central West Virginia and overlays three watersheds. A mining community since the early 1800's, the county has more acid mine impacted streams than any other county in the state. Working with the community, DOE-FETC staff developed a program that utilizes 20 AmeriCorps members to coordinate and lead watershed improvement activities. Currently the project is building two wetlands, has removed trash from 6 miles of stream bed, and is working with schools and youth groups to improve watershed awareness. A DOE-FETC staff member is currently chair of the environmental advisory group that provides technical direction for the project.

Point of contact: Randall Harris, U.S. Department of Energy, Federal Energy Technology Center, P.O. Box 880, Morgantown, WV 26507-0880, Ph: (304) 285-4860.

U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY TECHNOLOGY CENTER (FETC)

Two County Flood Risk Assessment Projects

DOE=s Federal Energy Technology Center (DOE-FETC) staff responded to a request from the Federal Emergency Management Association and local West Virginia community leaders to provide technical assistance to Tucker and Randolph counties. These counties had just been named as Project Impact pilot communities. The two counties have suffered through three major flooding events in the last ten years, receiving over $65 million in federal assistance in addition to millions more in state and private funds. The flooding has resulted in the loss of many sewage facilities and compromised previous efforts to control acid mine drainage. One stream now has so many acid mine drainage sources it requires a temporary treatment station to spray 50 tons of lime stone fines per day in order to keep the stream usable.

DOE-FETC staff were asked to serve as risk management and technical advisors for the Risk Assessment and Mitigation teams. In that capacity, DOE-FETC staff developed a comprehensive risk assessment strategy and plan that considers areas such as ecosystem health along with flooding events. Based upon these plans, proposals were issued and major restoration work is expected to begin in December, 1998.

Point of contact: Randall Harris, U.S. Department of Energy, Federal Energy Technology Center, P.O. Box 880, Morgantown, WV 26507-0880, Ph: (304) 285-4860.

U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY TECHNOLOGY CENTER (FETC)

River of Promise Working Group

DOE=s Federal Energy Technology Center (DOE-FETC) staff participated in a Department of Interior=s Office of Surface Mining (OSM)-sponsored effort to coordinate acid mine drainage mitigation activities on the lower Cheat River in West Virginia. The working group consists of the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, OSM, DOE-FETC, West Virginia University, West Virginia Departments of Environmental Protection and Natural Resources, Friends of the Cheat, Trout Unlimited, and Anker Energy. The group meets quarterly to share information and coordinate resources in the region. DOE-FETC staff serve on the technical committee, participating with other technical staff making decisions on project funding. The team has coordinated eight major interagency watershed improvement projects with a value of some $30 million in the last three years.

Point of contact: Randall Harris, U.S. Department of Energy, Federal Energy Technology Center, P.O. Box 880, Morgantown, WV 26507-0880, Ph: (304) 285-4860.

U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY TECHNOLOGY CENTER (FETC)

Impact of Monastery Run Mine Drainage Treatments on Loyalhanna Creek

For the past five years, Saint Vincent College and a coalition of public agencies, citizens= groups, and private sector contributors have been investigating and implementing methods for mitigating the stream pollution problems associated with abandoned mine discharges into Loyalhanna Creek and its tributaries in the vicinity of Latrobe, PA. The first set of pollution abatement measures to be implemented involves the construction of three sets of wetlands near Saint Vincent College along Fourmile Run (a tributary of Monastery Run, which subsequently empties into Loyalhanna Creek just above the city of Latrobe). The purpose of these wetlands is to promote the oxidation and subsequent precipitation of dissolved iron in settling ponds before it reaches the stream. As of August, 1998, one of the three sets of wetlands along Fourmile Run had been completed; the other two were under construction but were not yet treating water.

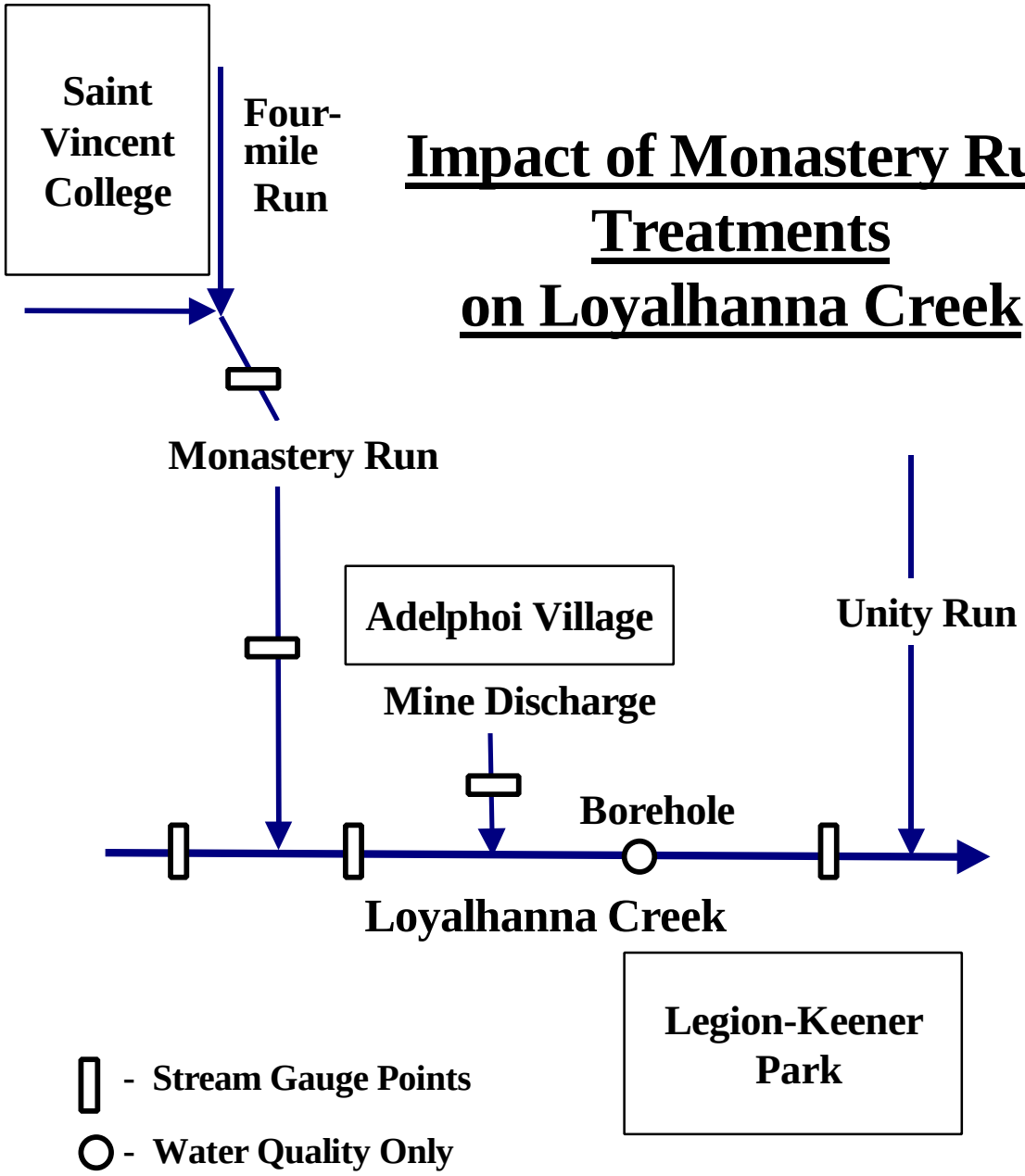
DOE=s Federal Energy Technology Center (DOE-FETC) has provided assistance to the cleanup effort by performing a study to determine how the partial treatments of the mine discharges at Saint Vincent College have affected Monastery Run and Loyalhanna Creek. Included in the study was the measurement (or estimation) of the pollution loads from three other mine drainage sources -- at Adelphoi Village, Unity Run, and a borehole which discharges directly into the bed of the Loyalhanna -- that directly enter the Loyalhanna within the city of Latrobe. This information was then used to estimate how these discharges would impact Loyalhanna Creek after the treatments at Saint Vincent College are completed.

Analysis of the available data showed the partial mine drainage treatments have reduced the dissolved (ferrous) iron concentrations in Monastery Run by about 40 to 45 percent and by an equal or greater amount in the Loyalhanna Creek immediately downstream of Monastery Run.

Even if the treatments are only effective in removing 90 percent of the iron from Monastery Run, which is easily achievable using passive treatment technology, the iron loading rate of Monastery Run will be reduced to a level that is below the iron loading rate of the Loyalhanna upstream of Monastery. This is likely to cause a dramatic visual improvement in the Loyalhanna downstream of Monastery.

Point of contact: William Aljoe, U.S. Department of Energy, Federal Energy Technology Center, 626 Cochrans Mill Road, Pittsburgh, PA 15236-0940, Ph: (412) 892-6569.

Impact of Monastery Run Treatments on Loyalhanna Creek



U.S. DEPARTMENT OF ENERGY
FEDERAL ENERGY TECHNOLOGY CENTER (FETC)

Remediation of Contaminated Mine Discharges at the National Park Service (NPS) Big South Fork National River and Recreation Area, Tennessee-Kentucky

The National Park Service=s (NPS) Big South Fork National River and Recreation Area (BISO) is located on the Cumberland Plateau, northwest of Knoxville, Tennessee in southeastern Kentucky and northeastern Tennessee. The Big South Fork Region has been extensively mined for coal since the turn of the century with some mines still operating in the Big South Fork Watershed. These mining activities created a vast complex of underground mines within the BISO that are clustered along the various coal seam outcropping along the steep slopes of the Big South Fork river gorge. The waste materials from these mines were generally deposited in uncontrolled dumps near the mines. The coal spoils and pyrolized gob piles that were deposited in the floodplain continue to be a source of metal-laden acidic drainage. Aquatic life in the river has been adversely affected by depressed pH=s and elevated concentrations of metals in the water and sediment columns of the River.

Since February 1994, DOE=s Federal Energy Technology Center (DOE-FETC) has provided technical assistance and project management support to the NPS at BISO. This assistance (provided on a reimbursable cost basis) has been in support of NPS efforts to characterize, prioritize, and remediate the adverse environmental impacts of abandoned mine discharges on the Big South Fork Watershed. The project efforts are currently focused on selected abandoned mine sites located along a 12-mile segment of the Big South Fork of the Cumberland River approximately 5 miles north of the Tennessee border in portions of McCreary County in Kentucky.

A three-year investigation, designed by the NPS and DOE-FETC, has recently been completed that identifies, characterizes, and prioritizes water quality impacts that result from contaminated mine drainage (CMD) in a heavily impacted twelve mile portion of the Big South Fork of the Cumberland River. The products from that investigation include an inventory of all CMD sites within the park, a prioritization of the sites relative to their direct impact on the Big South Fork of the Cumberland River, and conceptual designs for remediation methods for sites which will most improve the quality of water in the River. Remedial projects and best management practices to be considered include passive wetland treatment systems, anoxic limestone drains, lined channels, and removal of spoils or gob piles. Based on these recommendations, the NPS is now ready to initiate the remedial phase for selected CMD sites.

Currently, DOE-FETC is providing technical direction and procurement services for a set of solicitations designed to provide professional engineering and construction services to remediate selected priority sites at BISO. Future DOE-FETC efforts will include working with a Big South Fork Watershed coalition that includes the U.S. Forest Service, Natural Resources Conservation Service, Office of Surface Mining, and environmental agencies of Tennessee and Kentucky. This project represents an excellent example of how DOE-FETC has provided cost-effective technical and project management assistance to help solve watershed environmental problems.

Point of contact: David Hyman, U.S. Department of Energy, Federal Energy Technology Center, 626 Cochrans Mill Road, Pittsburgh, PA 15236-0940, Ph: (412) 892-6572.